



Research Article:

## Health Awareness Among Waterpipe Smokers in Sulaimani City/Iraq: Anticipation of Hazardous Impacts and Attitudes Towards Nicotine Replacement Therapy

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### Article Information

#### Article history:

Received on: 29 March 2024  
 Revised on: 03 May 2024  
 Accepted on: 12 May 2024  
 Published on: 01 September 2024

#### Keywords:

Health awareness;  
 Waterpipe smokers;  
 Hazardous;  
 Nicotine replacement therapy

### Abstract

**Background:** Over the past decade, the number of waterpipe smokers in Iraqi Kurdistan Region has increased. The driven factors behind this surge, as well as the extent of knowledge about its medical ramifications has not been fully elucidated among its users in this region. Therefore, this study was designed to evaluate the prevalence of waterpipe smokers in the Sulaimani city/Iraq and to investigate the knowledge and attitude towards this habit along with methods of evading this habit. **Method:** This cross-sectional study was carried out from July 2022 to August 2022 in Sulaimani/Iraq. One hundred eighty-one waterpipe smokers participated in the study. Various aspects have been addressed using questionnaires including behaviors, perception and knowledge towards waterpipe smoking (WPS). Moreover, personal awareness regarding nicotine replacement therapy (NRT) were addressed. Data analysis was performed using Graphpad Prism 7. **Results:** Results have shown that significant number of participants (79.6%) are waterpipe smoking in the cafes while huge number of them (57.5%) have not any family members smoking WP. Results also revealed that 86.2 % of participants are male and they mainly single. Most of the participants are aware of the health risks of their smoking behaviors. While, majority of them have not heard about NRT. Despite the awareness of its ramifications, 19.9 % of participants suffered harm from using waterpipe smoking. **Conclusion:** In conclusion, most of our participants had the good perception that waterpipe smoking has health problems. However, there is no information regarding the method of using NRT. Resulting efforts are needed to further raise the public awareness about the impacts of WPS, and they should be guided towards behavioural changes and using NRT as an alternative method.

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## 1. Introduction

One of the common traditional approaches to use tobacco in the middle east is Waterpipe smoking (WPS) (1). Nowadays, there is a dramatic increase in the use and popularity of Waterpipe smoking across the globe. The main

driven factors behind this surge include globalisation and the process of immigration from the Middle Eastern countries towards the developed ones (2,3). Additionally, accessibility to the sources of sweetened and flavoured waterpipe tobacco, misunderstanding of its health associated problems and increased number of cafes and restaurants offering WPS have served as contributing factors to this surge (2,4). Moreover, from cultural point of view, WPS is more acceptable to be shared among family members than cigarette smoking which eventually leads to an increased popularity of WPS (5). Other factors that increased the use WPS might be ascribed to marketing advertisement, low cost and lack of regulations towards WPS (4). Studies have revealed that WPS is not less harmful than cigarette smoking. They also showed that WP smoke contains large amount of carcinogenic toxicants that cannot be filtered via

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#### How to cite:

Salh, H., j., H., Aziz, D., F., Obeid, K., A., (2024). Health Awareness Among Waterpipe Smokers in Sulaimani City/Iraq: Anticipation of Hazardous Impacts and Attitudes Towards Nicotine Replacement Therapy. Iraqi J. Pharm. 21(3), 107-116.

DOI: <https://doi.org/10.33899/iraqij.p.2024.148273.1092>

passing water as it is misunderstood by its users (6,7). WP smoke contains many harmful elements such as tar which is a carcinogenic polyaromatic hydrocarbons (PAH) and tobacco-specific nitrosamines (TSNA) (5,8). It also contains metals and volatile organic compounds such as cobalt, chromium, nickel, cadmium, lead, and benzene and volatile aldehydes such as formaldehyde, acrolein, methacrolein, etc (5). Apart from these substances, many other harmful elements can be found in WP smoke, for instance, furans, nicotine, nitric oxide and carbon monoxide (5,8). Waterpipe users are exposed to numerous risks of diseases ranging from organ damage to psychogenic and mental problems. Studies have revealed that WPS can lead to cancer of various organs such as lung, esophageal, gastric, oral and bladder cancers (9-13). Additionally, WPS is considered as a driving factor for many health problems such as chronic obstructive pulmonary disease (COPD) (14-16), *H. pylori* infection (17), hepatitis C (18), genotoxicity (19-21), cardiovascular disease (22,23) and adverse birth outcomes (24,25). Moreover, it is believed that hematological problems such as elevated WBC counts among WP smokers is linked to WP smoking (26). Also, the rate of other health issues such as metabolic syndrome (27), periodontal disease (28) and mental health diagnoses (29) is significantly higher among WP smokers.

One of the major problems associated with WP smokers is their belief and attitude towards the mental and physiological ramifications of their habit. It needs a cumbersome work around to change their beliefs and attitudes. For instance, an overwhelming majority of WP smokers contend that waterpipe does not cause any dependence, and they can quit smoking waterpipe whenever they intend to, while at least in some users, WTS supports nicotine/tobacco dependence (2,4). Many Strategies can be performed to avoid people from getting attracted to WPS such as enforcing bans on advertising, promotion, and sponsorship of it and raising the awareness among families and youth communities regarding the catastrophic consequences of WPS (5). Health warning labels (HWLs) is proved to be an effective strategy in reducing the overall rate of smoking and encouraging people to get quit. WHO has recommended HWL as a method to curb the ever-growing number of WP smokers across the globe (30). Food and Drug Administration (FDA) also recommended HWL to be placed on WP products as well (30). A study by Islam F, et al. (2016) has revealed that specific warning labels on the base, mouthpiece or the stem of the waterpipe can dismantle the myth of safety around WPS (31).

On the other hand, social media plays a key role in global efforts to curbing the spread of smoking (32). Social media's content, especially educational videos, play a pivotal role raising the awareness of young generations and reducing the exposure to WPS. A study by Kanmodi k.k, et al. (2020) shows that video content on both social media and YouTube are very effective in attracting the attention of general people and educating them regarding the harmful ramifications of WPS (33). In terms of intervention, a study done by Maziak W et al. (2015) classified interventional approaches into pharmacological methods such as nicotine replacement therapy NRT and bupropion and nonpharmacological or

behavioral methods, for instance, encouragement, planning and preparation and the results have shown that the brief behavioral cessation treatment for waterpipe users appears to be a feasible and effective strategy (34). The number of WP users globally is on the rise (35). However, there is lack of data on the level of awareness among WP users and their perception is not fully elucidated on the harmful outcomes of WPS. The current study was designed to evaluate the perceptions of WP users regarding waterpipe smoking, health awareness such as the hazardous effects of waterpipe smoking, and personal awareness regarding NRT.

## 2. Materials and Methods

This cross-sectional, questionnaire-based survey study was done from July 2022 to August 2022 and was carried out in twelve waterpipe cafeterias in Sulaimani city. The cafes, which serve narghiles, were designated after interviewing the managers and receiving their authorization.

The study protocol was approved by the ethical committee of the College of Pharmacy, University of Sulaimani with the registration number (PH 59-22 on 15/06/2022). This study complies with the Declaration of Helsinki. Informed consent was obtained from all the participants prior to study commencement and for participants less than 18 years old obtained informed consent from parents. One hundred eighty-one individuals participated in the study. We distributed questionnaires to participants who had the following inclusion criteria: 1-Waterpipe users 2-The ability to read and write 3-Ready to participate 4-Kurdish people.

A validated self-administered questionnaire was designed to collect data based on previous studies and translated into the native language. The questionnaire used in this study consists of 36 questions and was divided into six sections (socio-demographic characteristics (2,4,36), personal characteristics (2,4,36), waterpipe smoking behavior (2,36), perceptions about waterpipe smoking (36), knowledge regarding the hazardous effects of waterpipe smoking (2,4,36-41), and personal awareness regarding NRT). First of all, the original version was interpreted into Kurdish by professional person in English and Kurdish. Then, the Kurdish version was back-translated into English by alternative person who was also fluent in both English and Kurdish. Then the two English versions of questionnaires were compared by a native speaker and edited. Finally, the last version was translated into Kurdish by a fluent person in both Kurdish and English who was not aware of the project. The statistical analysis was carried out using Graphpad Prism 7. The values of measured parameters were calculated as numbers and percentages for descriptive analysis.

## 3. Results

Out of the 181 participants, 45.3% of participants were ages between 21-25, 86.2 % were males and 64.1% were single. 33.7% of participants had university qualifications; 82.9 % lived with their families. 30.9% of participants were

cigarettes smoking and 28.7 % also were alcoholic drinkers as shown in **Table 1**.

**Table 2** demonstrates the personal characteristics of waterpipe smokers. The major factors behind waterpipe smoking in our study were 70.7% pleasurable experience and 14.9% socializing. The results indicated that 56.4% of participants liked the kick and 32% felt relaxed regarding waterpipe smoking. Most of participants, 72.9%, thought that waterpipe smoking is harmful to health, 26% believed that it produced smoke and 51.9% of participants believed that it caused addiction. Only 19.9% of participants suffered any harm from using waterpipe smoking.

57.5% of participants had none of their close family smoked waterpipe and most of the friends of participants 39.2 % were waterpipe smokers. 54.7 % of participants smoked waterpipe every day. The majority of participants 79.6 % smoked waterpipe in the cafes, and most of them 90.1 % smoked waterpipe with friends. It was observed that 50.27% of participants shared waterpipe smoking with others. 50.3 % of participants were thinking of quitting waterpipe smoking **Table 3**.

The results in **Table 4** reveal that most waterpipe smokers had wrong perception regarding waterpipe smoking

compared to cigarette smoking. Only for three sentences, more than 50% participants answered correctly. 87.3 % participants believed that the smoke from a waterpipe is very concentrated than smoking, 82.9 % and 50.8% of participants knew that tobacco and other flavoring substances are used in waterpipe smoking, and waterpipe smoking, contains carbon monoxide which is harmful to health, respectively.

Most of the participants had good knowledge about waterpipe smoking that causes the following diseases: 68.5% cancer, 74% respiratory problems, 66.3 % infections, 63% cardiovascular disease and 60.8% haematological diseases, while only 40.3 % of participants knew that waterpipe smoking causes alterations in chromosome. 76.2% of participants knew that use of waterpipe smoking during pregnancy is teratogenic **Table 5**.

The majority of participants, 54.7 % had not heard of NRT and 82.9% were not aware of the uses of NRT. Most of the participants, 51.9% could quit waterpipes by using NRT **Table 6**.

**Table 1.** Socio-demographic characteristics of participants

Characteristics		Number (%)
Age in year	<15	0 (0)
	15-20	6 (3.3)
	21-25	82 (45.3)
	26-30	54 (29.8)
	31-35	26 (14.4)
	36-40	8 (4.4)
	41-45	4 (2.2)
	46-50	0 (0)
Gender	>50	1 (0.6)
	Male	156 (86.2)
Marital status	Female	25 (13.8)
	Single	116 (64.1)
	Married	55 (30.4)
Education level	Divorced	10 (5.5)
	Primary school	14 (7.7)
	Middle school	28 (15.5)
	Secondary school	44 (24.3)
	Institute	29 (16.0)
	University	61 (33.7)
	Master	5 (2.8)
Living arrangement	PhD	0 (0)
	With family	150 (82.9)
Cigarette smoking	Without family	31 (17.1)
	Yes	56 (30.9)
Alcohol drinking	No	125 (69.1)
	Yes	52 (28.7)
	No	129 (71.3)

**Table 2.** Personal Characteristics of the participants

Personal Characteristics of the participants		Number (%)
Factors behind water-pipe smoking *	Pleasurable experience	128 (70.7)
	Adds to intimacy in social gathering	0 (0)
	Socializing	27 (14.9)
	Habit	13 (7.2)
	Helps to deal with pressure	1 (0.6)
	Time availability and boredom	14 (7.7)
	Fashion	13 (7.2)
	Loneliness	11 (6.1)
	Influence of friends	6 (3.3)
Social status	6 (3.3)	
Positive feeling about waterpipe smoking *	Sweet smell	37 (20.4)
	Relaxation	58 (32.0)
	Gives a kick	102 (56.4)
	None	6 (3.3)
Negative feeling about waterpipe smoking *	Pollution	24 (13.3)
	Smoke production	47 (26.0)
	Harmful to health	132 (72.9)
Addiction potential	Yes	94 (51.9)
	No	87 (48.1)
Suffered any harm of waterpipe smoking	Yes	36 (19.9)
	No	145 (80.1)

\* Number of Responses Exceeds Participant Count Due to Multiple Selections.

**Table 3.** Waterpipe smoking behaviour among the participants

Smoking behaviour		Number (%)
Waterpipe smoking among close family *	Father	9 (4.9)
	Mother	0 (0)
	Sister	7 (3.9)
	Brother	60 (33.1)
	Husband	6 (3.3)
	Wife	6 (3.3)
	None	104 (57.5)
Waterpipe smoking among close friends *	All of them	66 (36.5)
	Most of them	71 (39.2)
	Some of them	44 (24.3)
	None	0 (0)

Frequency *	Every day	99 (54.7)
	Twice a week	25 (13.8)
	weekly once	19 (10.5)
	monthly once	12 (6.6)
	every two months	26 (14.4)
Place of waterpipe smoking *	Cafe	144 (79.6)
	Home	78 (43.0)
	Friend home	37 (20.4)
	Picnic	56 (30.93)
Smoke with whom *	Family member	22 (12.15)
	Friends	163 (90.1)
	Alone	42 (23.2)
Waterpipe *	Share with others	91 (50.27)
	use disposable plastic nozzle	65 (35.9)
	single for self	71 (39.2)
Thinking of quitting waterpipe smoking	Yes	91 (50.3)
	No	90 (49.7)

\* Number of Responses Exceeds Participant Count Due to Multiple Selections.

**Table 4.** Perceptions about Waterpipe smoking in Comparison to Cigarette Smoking

Perceptions of tobacco products		Number (%)
Waterpipe smoking has less health issues than cigarette smoking.	Yes	70 (38.7)
	No	<b>70 (38.7) *</b>
	I don't know	41 (22.7)
Most of the toxins will be removed by the water in the pipe. This makes waterpipe smoking safer than cigarette smoking.	Yes	57 (31.5)
	No	<b>61 (33.7) *</b>
	I don't know	63 (34.8)
Waterpipe smoking is producing minimum irritation hence it is safe for the respiratory system.	Yes	48 (26.5)
	No	<b>76 (42.0) *</b>
	I don't know	57 (31.5)
The smoke of waterpipe is very concentrated in comparison to cigarette smoke	Yes	<b>158 (87.3) *</b>
	No	10 (5.5)
	I don't know	13 (7.2)
Tobacco and other flavoring substances are used in waterpipe smoking.	Yes	<b>150 (82.9) *</b>
	No	15 (8.3)
	I don't know	16 (8.8)
The amount of the nicotine in waterpipe is smaller than cigarette.	Yes	58 (32.1)
	No	<b>78 (43.0) *</b>
	I don't know	45 (24.9)

Waterpipe smoke contains carbon monoxide which is harmful to health.	Yes	<b>92 (50.8) *</b>
	No	15 (8.3)
	I don't know	74 (40.9)

\* Are the Correct Answers for Every Statement.

**Table 5.** Knowledge regarding the hazardous effects of waterpipe smoking

Knowledge regarding the hazardous effects of waterpipe smoking		Number (%)
Cancer	Yes	124 (68.5)
	I don't know	57 (31.5)
Respiratory problems	Yes	134 (74.0)
	I don't know	47 (26)
Infections	Yes	120 (66.3)
	I don't know	61 (33.7)
Alterations in chromosome	Yes	73 (40.3)
	I don't know	108 (59.7)
Cardiovascular disease	Yes	114 (63.0)
	I don't know	67 (37.0)
Teratogenicity during pregnancy	Yes	138 (76.2)
	I don't know	43 (23.8)
Hematological diseases	Yes	110 (60.8)
	I don't know	71 (39.2)

**Table 6.** Personal awareness regarding NRT.

Personal awareness regarding NRT.		Number (%)
Have you heard of NRT?	Yes	82 (45.3)
	No	99 (54.7)
Are you aware about uses of NRT?	Yes	31 (17.1)
	No	150 (82.9)
Can you quit waterpipes by using NRT?	Yes	94 (51.9)
	No	87 (48.1)

#### 4. Discussion

According to the results of present study, most participants were ages between 21-25. This result is similar to study done by Almogbel Y S et al (2021) in Saudi Arabia, who reported that the majority of participants, 54.9% were ages between 21-23 (42). Furthermore, a study by Thabit M. F. et al (2018) in Baghdad, Iraq, who observed that most of participants, 58.7% were ages between 20-24 (43). Cigarette and waterpipe smoking are an important health risk among university students in Kuwait, Egypt, Jordan, the Kingdom of Saudi Arabia, Lebanon, Libya, Yemen, and United Ara Emirates (44). In the current study, the percentage of males smoking waterpipe tends to be higher 86.2 % when compared to female gender 13.8 % which is in agreement with other studies(40,42,43,47,49). Results obtained in our

study indicated that 64.1 % of the waterpipe smokers were single, this result comes in accordance with other studies However, a study done by Hessami Z. et al. (2017) in Iran found that the majority of waterpipe smokers were married (46). Moreover, our results showed that 33.7 % of waterpipe smokers in our study had university qualifications. Whereas, a study conducted among Iranian population found that most of waterpipe smokers had high school diploma (46). In our data most of waterpipe smokers 82.9 % were living with their family. Moreover, a study by Kakodka P V. et al (2013) showed majority of waterpipe smokers were also living with their family (36).



The results of the present study revealed that almost 30.9 % of waterpipe smokers were cigarette smokers. This is consistent with other studies conducted by Aljarrah K. et al (2009) who reported 28.4% of waterpipe smokers were cigarette smokers (48). Whereas this percentage was lower as compared to the 42.1%, 54.7 % and 61.4% waterpipe smokers from India (36), Bagdad, Iraq (43) and Turkey (49). Waterpipe smokers are more likely to be cigarette smokers and believe that it is less harmful than smoking cigarette (36).

Data revealed that 28.7 % of waterpipe smokers were alcohol use. Cigarette, waterpipe smokers, drug and alcohol of use were significant correlates of each other (51). In the current study, 70.7 % of pleasurable experience was the main factors reported by the waterpipe smokers that lead to waterpipe smoking. Pleasurable experience was an important factor for waterpipe smokers according to study conducted in India (36). In contrast, the main factors reported by the waterpipe smokers in Saudi Arabia that causes waterpipe smoking was outgoing with friends and company (4,41,45). Moreover, recreational in Saudi Arabia (2), curiosity in Jordan (38), relief of tension and stressors in Bagdad, Iraq (43) and peer influence (49) in Turkey were important motivations for waterpipe smoking by waterpipe smokers. The results of the present study indicated that 56.4% of the responders smoked for the kick. These results were in disagreement with Kakodka P V. et al (2013) who reported that the majority of participants smoked for relaxation (36).

72.9% of the participants had an opinion that waterpipe smoking is harmful to health. However, a study conducted by Kakodka P V. et al. (2013) revealed that pollution was the major negative effect of waterpipe smoking (36). Our results also indicated that 51.9 % of waterpipe smokers thought that waterpipe smoking causes addiction. This outcome is possible due to the educational level of our participants, which is in accordance with the result of other studies that reported almost the same result (37,43).

In the present study, 57.5 % of participants had none of close family smoked waterpipe. In addition, our results had similarity to study done by Kakodka P V. et al (2013) who reported that 72.5% of waterpipe smokers had none close family smoked (36). In contrast, other studies reported that 12.7 %, 2 % and 20.2 % of waterpipe smokers had none close family smoked, respectively (4,43,47). Consistent with previous reports, most of the friends of participants were waterpipe smokers (45). However, a study conducted by Amin T T. et al (2010) showed had majority of waterpipe smokers had all of friends were waterpipe smokers (4). The current study showed that majority of responders (54.7%) smoked every day which is consistent with other studies (4, 36, 43, 45, 48, 49). The current study displayed that an overwhelming majority of waterpipe smokers smoked at cafes. These results were in agreement with the findings of other researchers (4,36,43). Our data displayed that most of waterpipe smokers (90.1 %) smoked waterpipe with friends, this result comes in accordance with the findings of others (2,36,40). The results also show that 50.27 % of participants shared waterpipe smoking with others and only 35.9 % of participants used disposable plastic nozzle.

Whereas, the majority of waterpipe smokers enrolled in the study of Kakodka P V. et al (2013) used disposable plastic nozzle (36). Sharing the waterpipe smoking could be a significant source of transferring the infection from one to another (52). The variation of our result with the latter one might be ascribed to the fact that the latter one was conducted among university students where the participants are educated and they are aware of the risk of sharing water-pipe smoking.

The present study revealed that 50.3% of participants were thinking of quitting waterpipe smoking. Our data was in disagreement with a study done by Kakodka P V. et al (2013) who reported that most of waterpipe smokers were not thinking of quitting waterpipe smoking (36).

In the current study, most waterpipe smokers had correct perceptions regarding three facts. Firstly, the smoke from a waterpipe is very concentrated than smoking 87.3 %. Secondly, tobacco and other flavoring substances are used in waterpipe smoking 82.9%, and thirdly, waterpipe smoking contains carbon monoxide which is harmful to health (50.8%). These results are compatible with a previous study conducted by Kakodka P V. et al. (2013) who reported that most of the responders, 57.8%, 60.7 %, had correct perceptions regarding that the smoke from a waterpipe is very concentrated than smoking and tobacco and other flavoring substances are used in waterpipe smoking, respectively (36). The results showed that 68.5% of the participants had good information about waterpipe smokers causing cancer. This finding comes in accordance with those shown by others (2, 38, 41, 43, 52). In addition, our result revealed that most of waterpipe smokers (74%) were aware that waterpipe smokers lead to respiratory problems. This result is analogous to that of other studies (4, 38, 41, 45). 66.3% of responders had an idea about waterpipes increasing the risk of infection, which is consistent with result of other studies (2,36-38, 43). Furthermore, most of the participants (63%) had a good knowledge regarding waterpipe smoking's risk of cardiovascular diseases and this result was in agreement with other studies (2,4,37-41,43,45). 60.8% and 76.2% of participants, respectively, were aware of the haematological and teratogenic effects of waterpipe smoking, which is similar to the study done by Alhawsawi E.M.F. et al (2019) (41). However, our result showed that most of responders 59.7 % did not have knowledge regarding the chromosome alterations effects of waterpipe smoking, which is similar to the result of the study obtained by Kakodka P V. et al (2013) (36).

The main alkaloid in tobacco is nicotine which is the deriving factor of getting addiction. Therefore, Nicotine replacement therapy (NRT) is considered as an effective strategy to reduce the amount of tobacco usage and to tackle the problem of addiction (53). Alongside with NRT, behavioural therapy is proved to be effective in motivation of cigarette quitting (54). Most of participants (54.7%) had never heard of NRT and while 82.9% of them were not knowledgeable about methods of use of NRT. In contrast to this, Gill G V. et al. (2004) reported that only 34% of the participants had never heard of NRT and 34% of them were unaware of uses of NRT (55). Moreover, a study conducted by Taneja P. et al (2022) observed 10.5% have not heard of

NRT and 17.1% of participants were not aware of using of NRT (54).

## 5. Conclusion

The actual health problems from WPS are emerging in our society. According to these results, there are correct perceptions that waterpipe smoking has health issues. In contrast, there is no knowledge regarding the methods of use of NRT. So, efforts must be done to further raise the public awareness about the potential implications of WPS in terms of health, environmental and financial consequences. Furthermore, NRT should be proposed as an alternative and effective method to get rid of WPS and community pharmacies can play a key role in this regard.

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### الوعي الصحي بين مدخني النرجيلة في مدينة السليمانية/العراق: توقع التأثيرات والمواقف الخطرة تجاه العلاج ببدائل النيكوتين

#### الخلاصة

**الخلفية:** خلال العقد الماضي، ارتفع عدد مدخني النرجيلة في إقليم كردستان العراق. ولم يتم توضيح العوامل الدافعة وراء هذه الظاهرة، فضلاً عن مدى المعرفة بتداعياتها الطبية بشكل كامل بين مستخدميها في هذه المنطقة. لذلك، صممت هذه الدراسة لتقييم مدى انتشار مدخني النرجيلة في مدينة السليمانية/العراق وللتحقق من المعرفة والموقف تجاه هذه العادة وطرق التخلص من هذه العادة. **الطريقة:** أجريت هذه الدراسة المقطعية في الفترة من يوليو 2022 إلى أغسطس 2022 في السليمانية/العراق. شارك في الدراسة مائة وواحد وثمانون من مدخني النرجيلة. تمت معالجة جوانب مختلفة باستخدام الاستبيانات بما في ذلك السلوكيات والإدراك والمعرفة تجاه تدخين النرجيلة (WPS). علاوة على ذلك، تم تناول الوعي الشخصي فيما يتعلق بالعلاج ببدائل النيكوتين (NRT). تم إجراء تحليل البيانات باستخدام Graphpad Prism 7. **النتائج:** أظهرت النتائج أن عدداً كبيراً من المشاركين (79.6%) يدخنون النرجيلة في المقاهي في حين أن عدداً كبيراً منهم (57.5%) ليس لديهم أي فرد من أفراد الأسرة يدخنون الفسفور الأبيض. وكشفت النتائج أيضاً أن 86.2% من المشاركين هم من الذكور وأغلبهم عازبون. يدرك معظم المشاركين المخاطر الصحية الناجمة عن سلوكياتهم المتعلقة بالتدخين. في حين أن غالبيتهم لم يسمعوا عن العلاج ببدائل النيكوتين. وعلى الرغم من الوعي بتداعياته، إلا أن 19.9% من المشاركين تعرضوا لضرر من تدخين النرجيلة. **الاستنتاج:** في الختام، كان لدى معظم المشاركين تصور جيد بأن تدخين النرجيلة له مشاكل صحية. ومع ذلك، لا توجد معلومات بخصوص طريقة استخدام العلاج ببدائل النيكوتين. هناك حاجة إلى بذل الجهود الناتجة لزيادة الوعي العام حول تأثيرات المرأة والسلام والأمن، وينبغي توجيهها نحو التغييرات السلوكية واستخدام العلاج ببدائل النيكوتين كوسيلة بديلة.

**الكلمات المفتاحية:** التوعية الصحية، مدخني النرجيلة، المخاطر، العلاج ببدائل النيكوتين.